

RAIL VEHICLE AND TRACK OPTIMIZATION

●●● over 50 years of rail research



In 1965, NRC established a dedicated Railway Vehicle and Track research and testing laboratory to advance knowledge and mitigate challenges experienced on railways around the world.

For over 50 years, NRC has continued to focus on industry-specific rail issues, and has become a world leading center of expertise in rail vehicle and track optimization. Our reputation is based in deep academic roots, coupled with extensive practical experience garnered on freight, passenger and transit railways around the world.

NRC works with leading railway operators, equipment manufacturers and suppliers, academic institutions, and governments to advance the rail industry toward long-term benefit.

RAIL ENGINEERING EXPERTISE

NRC focuses on 4 main areas of rail engineering:

Rail vehicle engineering: Focuses on physical testing, engineering and dynamic simulation to enable rail car manufacturers and suppliers to produce better, safer, more durable and more reliable rail cars and rail/track components;

Vehicle/track interaction and optimization:

World-leading expertise and services focused on improving the performance, efficiency and safety of the vehicle-track system.

- a. Wheel / Rail profile design and analysis;
- b. Rail grinding, lubrication and friction management program development and best practices;
- c. Root-cause analysis and mitigation of rolling contact fatigue, wear and noise issues.

Track maintenance planning: Integration of technology, tools and data analytics to enable vehicle/track performance trending, assessment of track condition and degradation rates, identification and prediction of unsafe track conditions, minimization of unplanned track maintenance, and the reduction of capacity losses associated with service disruptions.

High performance rail: Leverages NRC's combined experience to focus on the broader issues of rail efficiency and safety to work collaboratively with industry to solve current and future rail industry challenges.

BENEFITS OF WORKING WITH NRC

NRC offers this unique combination of skills, facilities and experience to our clients and collaborative partners, enabling them to address current industry issues, and produce unique product advancements and technology solutions for the rail industry.



Testing effects and prevention of tank car rollover derailments at NRC facilities in Ottawa, ON

INSTRUMENTED WHEELSETS

Proven in North American freight and metro rail environments, NRC Instrumented Wheelsets (IWS) provide unmatched accuracy, reliability and durability. NRC IWS delivers critical information without the need for 3rd party data analysis contracts, providing performance-based track monitoring that identifies safe-limit exceptions according to the Association of American Railroads (AAR) and the Federal Railroad Administration (FRA) standards, or custom limits.

RESEARCH FACILITIES

We offer state-of-the-art research and testing facilities, located in Ottawa, Ontario.

- Structural Dynamics Laboratory;
- Climatic testing facility;
- Rail vehicle impact facility;
- Squeeze and tension frame facility;
- Wheel bearing and brake facility.

NRC EXPERTISE

- Instrumented Wheelsets
- Wheel/rail interface optimization
- Physical testing and evaluation of rolling stock
- Multibody dynamic simulation and modeling
- Technology evaluation and integration



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